

ECS 2011 Summer Fellowship Winners

Each year ECS awards Summer Fellowships to assist students in continuing their graduate work during the summer months in a field of interest to the Society. Congratulations to the following five Summer Fellowship recipients in 2011. The reports of the 2011 Summer Fellows will appear in the winter issue of *Interface*.



ABRIN SCHUMUCKER is the recipient of the 2011 ECS Edward G. Weston Summer Fellowship. He earned a BS with honors in chemistry from Indiana University in 2007.

While at Indian University, he studied the synthesis and applications of iron oxide nanoparticles in the laboratory of Lyudmila Bronstein. In 2008, he joined Chad A. Mirkin's group at Northwestern University where he is currently working toward earning his PhD in materials chemistry. His research interests include the synthesis and fabrication of plasmonic nano-materials, molecular electronics, and biological and chemical sensor technologies.



TAE-HO SHIN is the recipient of the 2011 ECS Colin Garfield Fink Summer Fellowship. He earned an MS degree in ceramic engineering from Yonsei University, Korea in 2006. Currently, he is

third-year graduate student in the group of Tatsumi Ishihara, in Department of Applied Chemistry at Kyushu University, Japan. Mr. Shin's general research interest is to apply a fundamental understanding to design novel materials related energy. His PhD thesis study focuses on understanding the mechanism of the electrochemical reaction on the electrode of the solid oxide fuel cells for developing the novel active oxide anode.



JEVAVEL VELMURUGAN is the recipient of the 2011 Joseph W. Richards Summer Fellowship. He received his BTEch in electrochemical engineering from CECRI, Anna University in 2006. In

the same year, he started his PhD studies in chemistry in the Mirkin group at CUNY. His research interests include electron transfer kinetics, scanning electrochemical microscopy (SECM),

electrochemistry through glass, and electrodeposition at nanoelectrodes. He has co-authored eight peer-reviewed papers including an invited review article. Recently, he participated in collaborative research projects at Kyoto University, Japan and Xiamen University, China.



JAMES WHITAKER is the recipient of the 2011 F.M. Becket Summer Fellowship. He is a PhD candidate in inorganic chemistry at Colorado State University in Fort

Collins, CO, working with Steven Strauss. Mr. Whitaker earned his undergraduate degree in chemistry at Colorado College in Colorado Springs, CO, where he did undergraduate research with Al Hagedorn, Harold Jones, and Nate Bower. Before attending graduate school, Whitaker worked as a Teaching Assistant for the chemistry department at Colorado College. In addition to his research at Colorado State University, he has worked with Nikos Kopidakis as a Research Fellow at the National Renewable Energy Laboratory in Golden, CO. In 2009 he traveled to Germany as part of an Alexander von Humboldt Fellowship and worked with Konrad Seppelt at the Free University in Berlin. In 2010 he was awarded a Research Fellowship at the International Center for Spectroelectrochemistry at the Leibniz Institute for Solid State and Materials Research in Dresden, Germany, where he worked with Lothar Dunsch. His research interests include transition metal and main group inorganic chemistry and their application to solving environmental problems.



SWETHA PUCHAKAYALA is the recipient of the 2011 H. H. Uhlig Summer Fellowship. She received her master's degree in chemistry from Jawaharlal Nehru Technological Uni-

versity with a number one ranking in 2008 and immediately started research under the supervision of Annamalai Senthil Kumar in the field of electroanalytical chemistry and material science at VIT University, India. Under his excellent guidance, Ms. Puchakayala has published four scientific articles including *Langmuir*, *Journal of Electroanalytical Chemistry*, *Colloids and*

Surfaces A, and *Analytical Methods*; and also filed an *Indian Patent* (Ref No:204/CHE/2010). She received the S. K. Rangrajan Gold Medal and Best Paper Award during the Fifteenth National Convention of Electrochemists (NCE-15) conference conducted by Central Electrochemical Research Institute (CECRI), India, on February, 2010, and a Best Poster Award at the Chennai Chemistry Conference held at Indian Institute of Technology Madras (IITM), India in 2011. Her research involves preparation, characterization, and electroanalytical applications of various organic and biological redox hybrid chemically modified electrodes. In 2011, she successfully secured two research scholarships from Indian government which includes a senior research fellowship from Council of Scientific and Industrial Research and an Inspire Fellowship from Department of Science and Technology.

Battery Division 2011 Student Research Award Winner



CHRISTOPHER FELL graduated from the Department of Materials Science and Engineering at the University of Florida in 2007 with a BSE. Currently, he is a

third-year graduate student in the group of Shirley Meng in the Laboratory for Energy Storage and Conversion, Department of Materials Science and Engineering at the University of Florida. Mr. Fell's research interests include synthesis and characterization of high voltage cathode materials for lithium ion batteries. His

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2011 Summer Fellowship Committee

Vimal Chaitanya, Chair
New Mexico State University, USA

Scott Lillard
Los Alamos National Laboratory, USA

Kalpathy Sundaram
University of Central Florida, USA

Enrico Traversa
National Institute for Materials Science, Tsukuba, Japan

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PhD thesis study is to develop fundamental understanding of new electrode materials for advanced lithium ion batteries by connecting processing, structure, and property relations, with a particular focus on the mechanics and dynamics of lithium transport. His research places a strong emphasis on the use of advanced characterization tools such as synchrotron X-ray diffraction, neutron diffraction, and aberration corrected S/TEM. Using these techniques Mr. Fell has characterized advanced cathode materials before, during, and following electrochemical testing to reveal unique and significant structural changes. Mr. Fell is the first author on two scientific articles (*J. Electrochem. Soc.* and *Energy Environ. Sci.*) and has given several presentations at international conferences on the topics of advanced cathode materials for lithium ion batteries.

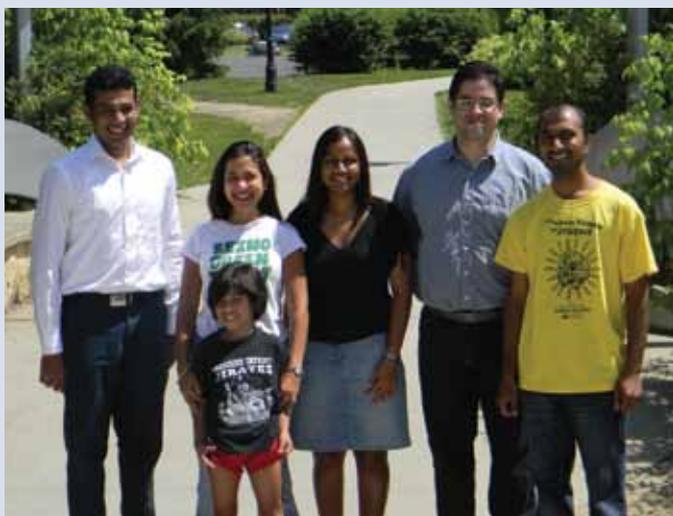
Morris Cohen Graduate Student Award of the Corrosion Division



HONGBO CONG received his PhD in materials science and engineering from the University of Virginia in 2009, advised by John R. Scully. His dissertation focused on the interplay between potable water chemistry variables and the electrochemical properties of copper piping. In this research, he was able to develop a scientific understanding of how certain water chemistries bring about the specific electrochemical conditions on copper that enable cold water pitting, based on the study of one potable water found to cause pitting. He received first place prize for best poster in corrosion engineering (Mars Fontana) from NACE International in 2006 and 2007. He also received 2007 NACE Foundation Book Scholarship in

recognition of outstanding academic achievement. He obtained his MS in materials science and engineering from the University of Virginia. Prior to this, he received his bachelor's degree in materials science and engineering from Tsinghua University, Beijing, China. Hongbo Cong is now employed as a project engineer at the Materials and Corrosion Technology Center (Dublin, Ohio) of Det Norske Veritas (USA) Inc. At DNV, he investigates the corrosion and performance of materials in harsh environments which is critical in advancing the safety, durability, and performance of current technology for storing radioactive nuclear waste. In addition, he investigates and develops new methods for solving challenging corrosion issues in the offshore oil and gas industry. He has also developed or contributed to the development of innovative wireless sensor technologies for monitoring various corrosion phenomena in pharmaceuticals, energy generation, nuclear waste storage, and bio-fuel systems.

New ECS Student Chapter Forms at Ohio University



Officers for the new **Ohio University Student Chapter** are (from left to right): **RAMASAMY PALANIAPPAN** (Treasurer), **GERARDINE BOTTE** (Faculty Advisor, shown with daughter), **VEDASRI VEDHARATHINAM** (President), **LUIS DIAZ ALDANA** (Vice-President), and **SANTOSH VIJAPUR** (Secretary).



Members of the **Ohio University Student Chapter** recently gathered. In the first row are (from left to right): **LUIS DIAZ-ALDANA** (Vice-President), **VEDASRI VEDHARATHINAM** (President), **SANTOSH VIJAPUR** (Secretary), **GERARDINE BOTTE** (Faculty Advisor), and **RAMASAMY PALANIAPPAN** (Treasurer). In the second row are (from left to right): **BRIAN HASSLER**, **GEETHA POONDI KRISHNAN**, **ALEX MILLER**, and **FEI LU**. In the third row are (from left to right): **DAN WANG**, **RITA CHAUDHARI**, **MERCY AGGREY**, **WEI YAN**, **OLUDAMILOLA DARAMOLA**, and **Xiaoyong Xia**.

The ECS Board of Directors approved the ECS Ohio University Student Chapter on May 3, 2011 at the spring meeting in Montréal, Canada. The purpose of this student organization is to foster a greater understanding of electrochemistry as well as to promote electrochemical and solid-state science and technology among peers. In addition, the new Chapter will help enhance student professional development and enrich the overall academic experience.

The Chapter will provide various benefits to students involved in electrochemical research, such as the opportunity to engage with fellow students in the field and to collaborate with other researchers to present posters at ECS meetings. Additional benefits include opportunities to organize technical meeting programs and to participate in scholarly activities.

The chapter will also emphasize sub-disciplines within electrochemistry including electrolysis (of urea, ammonia, and coal), corrosion, fuel cells, batteries, alternative energy, sensors, nanotechnology, and environmental science.

The Chapter looks forward to many activities, increasing membership, and working with ECS in 2011 and beyond.

Electrochemical Society Student Chapter Created at the University of California-Riverside

Electrical engineering and materials science and engineering graduate students and electrical engineering professor Alexander A. Balandin created an ECS Student Chapter at the University of California-Riverside (UCR). The UCR Student Chapter was approved at the ECS meeting in Montréal, Canada. Doctoral graduate students and PhD candidates Khan M. Farhan Shahil, Javed Khan, M. Zahid Hossain, and Muhammad Rahman serve as the UCR Chapter's Chair, Vice-Chair, Secretary, and Treasurer, respectively. Other graduate student members—founders of the UCR chapter—include Jie Yu, Craig Nolen, Vivek Goyal, Guanxiong Liu, and Desalegne Teweldebrhan. The UCR Student Chapter became the second one in the University of California system after the University of California-Berkeley Chapter, which was founded in 2006.

Professor Balandin, who chairs the materials science and engineering (MS&E) program at UCR, will serve as a faculty advisor and mentor to the ECS Chapter students. The founding students conduct their dissertation research in Balandin's Nano-Device Laboratory (NDL). The students' dissertation research at NDL include investigation of thermal and electronic properties of graphene, applications of graphene in electronic devices, and nanostructured materials for thermoelectric, photovoltaic, and battery applications. In 2008, Professor Balandin and his group members made an important discovery of extremely high intrinsic thermal conductivity of graphene and explained it theoretically. The group has also succeeded in a demonstration of the first low-noise, top-gate graphene transistor, graphene triple-mode amplifier and phase detector, and carried out the first mechanical exfoliation of topological insulator thin films.

The idea to create an ECS Chapter came from UCR students after some of them attended and gave talks at the ECS biannual meeting in Las Vegas in 2010. The students were impressed with the quality of technical presentations and opportunities



Organizers of the **University of California-Riverside Student Chapter** gathered in front of Alexander A. Balandin's Nano-Device Laboratory. From left to right are: graduate students **JIE YU**, **GUANXIONG LIU**, **MARTIN SOMESLA**, **KHAN M.** and **FARHAN SHAHIL**; Professor Balandin; undergraduate student researcher **ANA BOWLUS**; graduate students **DESALEGNE TEWELDEBRHAN**, **JAVED KHAN**, **ZHONG YAN**, **PRADYUMNA GOLI**, **VIVEK GOYAL**, and **SAMIA SUBRINA**; visiting researcher **DENIS NIKA**; and graduate students **MUHAMMAD RAHMAN**, **CRAIG NOLEN** and **M. ZAHID HOSSAIN**.



The organizers of the University of California-Riverside Student Chapter inside the lab.

for interaction with researchers and engineers from both academia and industry. Professor Balandin's history of participation in ECS meetings dates back to 1995. Javed Khan, one of the founding graduate students, received the 2nd Place Student Poster Session

Award in the Solid State Science and Technology category at the ECS meeting in Montréal, Canada. Javed's presentation was entitled "Graphene-like" Exfoliation and Characterization of Material Properties of Quasi-2D Crystals."

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ECS CUSAT Student Chapter Celebrates Its Third Anniversary



Students doing spectroscopy experiments with an Nd:YAG laser.

The ECS CUSAT Student Chapter, officially formed in 2008, has been organizing regular monthly lectures on various topics on solid-state physics, electrochemistry, optoelectronics, and other advanced topics. Experts in these areas were invited from various universities to deliver talks in their field of research. Ravendran Thambi (University College of Dublin, Ireland) provided a lecture series on fuel cells, dye and Q-dot sensitized solar cells, organic based photovoltaics, and "Meeting the Terawatt Energy Challenges Sustainably." C N R Rao, FRS (Chair to Scientific Advisory Committee to Prime Minister, Honorary President, and Linus Pauling Research Professor, JNCASR Bangalore) visited the Department of Physics and gave a talk on graphene.

The ECS CUSAT Student Chapter, in association with Department of Physics, Cochin University of

Science and Technology, also conducts two month academic training for graduate and postgraduate students of various institutions in Kerala. Recent training for students included courses on transparent thin film transistors; optoelectronic materials, and dilute magnetic semiconductors; nanomaterials and spectroscopy studies; ferroelectric materials; and diagnostics and characterization of plasma.

In addition, the weekly discussion forums organized by the Chapter are well attended by postgraduate and research students. The Department of Physics regularly contributes to the advancement of science and society by sharing their knowledge and expertise with the public. To provide interaction, the Department organized an open house to show its facility to the public as well as the students and teachers of the state. Members of ECS CUSAT actively participated in the open house.

Call for Nominations

For details on each award—including a list of requirements for award nominees, and in some cases, a downloadable application form—please go to the ECS website (www.electrochem.org) and click on the "Awards" link. Awards are grouped in the following sub-categories: Society Awards, ECS Division Awards, Student Awards, and ECS Section Awards. Please see the individual award call for information about where nomination materials should be sent; or contact ECS headquarters.

Visit
www.electrochem.org
and click on "Awards" link.



The **ECS SUMMER FELLOWSHIPS** were established in 1928 to assist students during the summer months in pursuit of work in the field of interest to ECS. The next fellowships will be presented in 2012.

Nominations and supporting documents should be sent to Vimal Chaitanya, New Mexico State University, Office of the VP for Research, MSC 3RES - Box 30001, Las Cruces, NM 88033-8001, USA, e-mail: vimalc@nmsu.edu. **Materials are due by January 1, 2012.**



The **STUDENT RESEARCH AWARD OF THE BATTERY DIVISION** was established in 1962 to recognize promising young engineers and scientists in the field of electrochemical power sources and consists of a scroll, a prize of \$1,000, waiver for the meeting registration, travel assistance to the meeting if required, and membership in the Battery Division as long as a Society member. The next award will be presented at the ECS fall meeting in Honolulu, Hawaii, October 7-12, 2012.

Nominations and supporting documents should be sent to Ratnakumar V. Bugga, Jet Propulsion Laboratory, Building 277 Room 207, MS 722 207, 4800 Oak Grove Drive, Pasadena, CA 91109-8001, USA; e-mail: ratnakumar.v.bugga@jpl.nasa.gov. **Materials are due by March 15, 2012.**



The **MORRIS COHEN GRADUATE STUDENT AWARD OF THE CORROSION DIVISION** was established in 1991 to recognize outstanding graduate research in the field of corrosion science and/or engineering. The award consists of a scroll, a prize of \$1,000, and travel assistance to the meeting where the award will be presented (up to \$1,000). The next award will be presented at the ECS fall meeting in Honolulu, Hawaii, October 7-12, 2012.

Nominations and supporting documents should be sent to David A. Shifler, Office of Naval Research, 875 N. Randolph Street, Code 332, Arlington, VA 22203-1995, USA; e-mail: david.shifler@navy.mil. **Materials are due by December 15, 2011.**

The **STUDENT AWARD OF THE CANADIAN SECTION** was established in 1987 for a student pursuing, at a Canadian University, an advanced degree in any area of science or engineering in which electrochemistry is the central consideration, and consists of an amount determined by the Executive Committee of the Canadian Section not to exceed \$1,500. The next award will be presented at an upcoming Section meeting.

Nominations and supporting documents should be sent to Janine Mauzeroll, UQAM, Department of Chemistry, CB-2640, 2101 Jeanne Mance, Montréal, QC, CANADA; tel: 514 987-3000 (3911); e-mail: mauzeroll@yahoo.ca. **Materials are due by December 31, 2011.**

Travel Grants

Several of the Society's Divisions offer travel assistance to students and young faculty members presenting papers at ECS meetings. For details about travel grants for 221st ECS Meeting in Seattle, WA, USA (May 6-11, 2012), please see the Seattle Call for Papers in the summer 2011 issue of *Interface*; or visit the ECS website: www.electrochem.org/student/travelgrants.htm. Please be sure to e-mail the student travel grant contact as each

Division requires different materials for approval. The deadline for submission for the spring 2012 travel grants is November 21, 2011.

Awarded Student Memberships Available

ECS Divisions are offering Awarded Student Memberships to qualified full-time students. To be eligible, students must be in their final two years of an undergraduate program or enrolled in a graduate program in science, engineering, or education (with a science or engineering degree). Postdoctoral students are not eligible. Awarded memberships are renewable for up to four years; applicants must reapply each year. Memberships include article pack access to the *Journal of The Electrochemical Society* online, *Electrochemical and Solid-State Letters* online, *ECS Transactions* online, and a subscription to *Interface*. To apply for an Awarded Student Membership, use the application form below or refer to the ECS website at: www.electrochem.org/awards/student/student_awards.htm#a.

Looking for Student News

Send all correspondence to

65 South Main Street
Pennington, NJ 08534-2839, USA
Tel: 609.737.1902 Fax: 609.737.2743
E-mail: interface@electrochem.org

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about any of the **ECS student programs**—student poster sessions, awards, or Student Chapters—please contact **David W. Harkness**, Director of Constituent Services at david.harkness@electrochem.org or 609.737.1902, extension 103, for more information.